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EXAMINER

DUDEK, JAMES A

ART UNIT	PAPER NUMBER
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2871

DATE MAILED: 06/20/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/676,138

Applicant(s)

WINKER ET AL.

Examiner

James A. Dudek

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 25 April 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-69 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 30-32 and 39 is/are allowed.
- 6) ☒ Claim(s) 1-13, 15-18, 20-22, 27-29, 33-38 and 40-69 is/are rejected.
- 7) ☒ Claim(s) 14 and 23-26 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

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DETAILED ACTION

As stated in the interview summary of paper number 7, the previous rejection was incomplete and this new rejection follows.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. ~~Therefore, the prior art date of the~~ reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

Claims 1, 4 and 53 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by the Wada JP patent ("937").

Per claim 1, 937 teaches a liquid crystal display (LCD), comprising: a liquid crystal cell [2]; and a tunable mirror [dimming element 4, reflects light], optically aligned with the liquid crystal cell [it is directly behind the cell and reflects ambient light passing through the cell 2], having controllable reflective and transmissive modes, such that in the reflective mode the tunable mirror primarily reflects light received from the liquid crystal cell back through the cell, and in the transmissive mode the mirror primarily transmits light towards the liquid crystal cell

[when no voltage is applied, 4 reflects light, when an AC voltage is applied the element 4 is transparent to obtain a transmission cell].

Per claim 4, 937 teaches a backlight on a side of the tunable mirror opposite the liquid crystal cell, the backlight being controllably switchable between emissive and non-emissive states of operation, for providing backlighting the LCD in the emissive state of operation [see lamp 5 and the abstract].

Per claim 53, 900 teaches display system, comprising: an operating system [12] and a liquid crystal display (LCD) connected to said operating system to display a characteristic of said operating system, said LCD comprising: a liquid crystal cell [1]; a tunable mirror optically aligned with the liquid crystal cell, having controllable reflective and transmissive modes, a backlight on a side of the tunable mirror opposite the liquid crystal cell, the backlight being controllably switchable between on and off states of operation such that, in the reflective mode, the tunable mirror primarily reflects light received from the liquid crystal cell back through the cell, and in the transmissive mode the mirror primarily transmits light received from the backlight towards the liquid crystal cell [10]; and a first linearly polarizing element optically aligned with the liquid crystal cell on a side opposite the tunable mirror, and having a first plane of polarization in a first linear direction [6].

Per claim 54, 900 teaches the display system of claim 53, further comprising a second polarizing element optically aligned between the tunable mirror and the liquid crystal cell, having a second plane of polarization in a second linear direction which is orthogonal to said first plane of polarization [5].

Claims 1-2 and 4-6 are rejected under 35 U.S.C. 102(e) as being clearly anticipated by 6437900 ("900").

Per claim 1, 900 teaches a liquid crystal display (LCD), comprising: a liquid crystal cell [1]; and a tunable mirror [REM 10], optically aligned with the liquid crystal cell [it is directly behind the cell and reflects ambient light passing through the cell 1], having controllable

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reflective and transmissive modes, such that in the reflective mode the tunable mirror primarily reflects light received from the liquid crystal cell back through the cell, and in the transmissive mode the mirror primarily transmits light towards the liquid crystal cell [column 2, lines 50-58].

Per claim 2, 900 teaches the tunable mirror is a reversible electrochemical mirror (REM) [see mirror 10 and summary of the invention].

Per claim 4, 900 teaches a backlight on a side of the tunable mirror opposite the liquid crystal cell, the backlight being controllably switchable between emissive and non-emissive states of operation, for providing backlighting the LCD in the emissive state of operation [see lamp 11 and column 2, lines 50-58].

Per claim 5, 900 teaches the LCD of claim 4, further comprising a first linearly polarizing element optically aligned with the liquid crystal cell on a side opposite the tunable mirror, and having a first plane of polarization in a first linear direction [see polarizer 6].

Per claim 6, 900 teaches the LCD of claim 5, further comprising a second linearly polarizing element optically aligned between the tunable mirror and the liquid crystal cell, having a second plane of polarization in a second linear direction which is orthogonal to said first plane of polarization [see polarizer 5].

Claims 16-17, 21, and 55-56 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by the WO 97/01789 ("789").

Per claim 16, 789 teaches the LCD of claim 4, wherein the tunable mirror element comprises: a tunable retarder [154], being controllably switchable between first and second states of operation, the optical phase delay of the two states differing by $X/2$ [see paragraph bridging pages 19-20]; and a reflective polarizer optically aligned with the retarder on a side opposite the liquid crystal cell, for reflecting light received from the retarder when the retarder is in the first state and for transmitting light through the retarder when the retarder is in the second state, such

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that the tunable mirror operates in the reflective mode when the retarder is in the first state, and in the transmissive mode when the retarder is in the second state [148 and pages 18-21].

Per claim 17, 789 teaches LCD of claim 4, wherein the tunable mirror element comprises: a zero to half-wave ($0-X/2$) retarder, being controllably switchable between 0 and $X/2$ states of operation, for rotating the plane of polarization of linearly polarized light of the first direction to linearly polarized light of the second direction in the $X/2$ state, and for transmitting light in the state; and a reflective polarizer optically aligned with the $X/2$ retarder on a side opposite the liquid crystal cell, for reflecting linearly polarized light of the second direction, and for transmitting light having a linear polarization of the first direction, such that the tunable mirror operates in the reflective mode when the $0-X/2$ retarder is in the A state, and in the transmissive mode when the $0-X/2$ retarder is in the $X/2$ state [see pages 18-21].

Per claim 21, 789 teaches the LCD of claim 17, further comprising a light diffusing element optically aligned with the liquid crystal cell for producing a diffused LCD output image [134].

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over 900 in view of 5182663 ("663").

900 teaches the LCD of claim 2, but lacks the REM matte surface to produce a diffuse reflectance. However, 663 teaches using a diffuse reflector at column 1, lines 37-48 to reduce bright spots. Furthermore, incorporating a diffuse surface between the 5 and 22 would have well within ordinary skill. Accordingly, it would have been obvious to one of ordinary skill at the time the invention was made to combine the diffuse reflection surface of 663 with 900.

Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over 900 in view of 5612801 ("801").

Per claim 7, 900 teaches the LCD of claim 6, but lacks a first A-plate between the first polarizing element and the liquid crystal cell; and a second A-plate between the second polarizing 5 element and the liquid crystal cell. However, 801 teaches an A-plate compensator on both sides of the LC cell at column 7, lines 47-59 to reduce inversion. Accordingly, it would have been obvious to one of ordinary skill at the time the invention was made to combine the A-plates of 801 with 900.

Claims 8-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over 900 in view of 5612801 ("801") and further in view of 663.

Per claims 8-9, 900 in view of 801 teaches the LCD of claim 7, but lacks a light diffusing element optically aligned with the liquid crystal cell for producing a diffused LCD output image. However, 663 teaches using a diffuse reflector at column 1, lines 37-48 to reduce bright spots. Furthermore, incorporating a diffuse surface between the 5 and 22 would have well within ordinary skill. Accordingly, it would have been obvious to one of ordinary skill at the time the invention was made to combine the diffuse reflection surface of 663 with 900.

Regarding the integration limitation, as the cell and reflector are integrated, the diffuser would also be integrated with the mirror. Also, In re Larson, 144 USPQ 347 (CCPA 1965) to make something integral "is merely a matter of obvious engineering choice"

Claims 10-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over 900.

Per claim 10, 900 teaches the LCD of claim 4, but lacks a first control system for switching the tunable mirror between reflective and transmissive modes; and a second control system for switching the backlight between emissive and non-emissive states of operation. However, 900 teaches a control circuit for controlling the cell, lamp and reflector. Furthermore, Nerwin v. Erlichman, 168 USPQ 177 states that the mere fact that a given structure is integral does not preclude its consisting of various elements. Thus, to separate the drive circuits would be obvious. Separating would allow for more flexibility for each of the given circuits separated out.

Per claim 11, 900 in view of the rejection of claim 10 above teaches the LCD of claim 10, where the first and second controls operate in tandem, such that when the backlight is in the emissive state, the tunable mirror operates in the transmissive mode, and when the backlight is in the non-emissive state, the tunable mirror operates in the reflective mode [the operation would remain the same with separate circuits and thus anticipate this limitation, see the specification of 900 for the operation of the cell, lamp and reflector].

Per claim 12, 900 teaches the LCD of claim 11, but lacks the first and second controls are automatically responsive to the level of ambient light, such that at a low level of ambient light the backlight operates in the emissive state and the tunable mirror operates in the transmissive mode, and at a high level of ambient light the backlight operates in the non-emissive state and the tunable mirror operates in the reflective mode [it is not clear if this limitation is taught by 900]. However, it is well settled that it is no "invention" to broadly provide a mechanical or automatic means to replace manual activity which has accomplished the same result. See In re Rundell, 48 F.2d 958. Accordingly, it would have been obvious to one of ordinary skill at the time the invention was made so that the user does not have to flip a switch to turn on and off the lamp and reflector.

Per claim 13, 900 teaches LCD of claim 12, wherein the first and second controls can be set to be either manually controllable or responsive to ambient light. However, this would allow the user to selectively turn on and off the reflector/lamp and thus save energy. Accordingly, it would have been obvious to one of ordinary skill at the time the invention was made to allow the user to switch on and off the light source as a matter of design choice.

Claims 5-13, and 33-38, 44-47, 53-55 are rejected under 35 U.S.C. 103(a) as being unpatentable over '937.

Per claim 5-6 and 44-46, see 1 and 3, although not explicitly teaching crossed polarizers, this was a notoriously well known normally white cell, which offers improved contrast. Accordingly, it would have been obvious to one of ordinary skill at the time the invention was made to combine the cross polarizer scheme with '937 in order to create a normally white cell.

Per claim 7, it was well known to incorporate A plates between the polarizers and cell in order to improve contrast and/or viewing angle. Accordingly, it would have been obvious to one of ordinary skill at the time the invention was made to place A plates between the polarizers and the cell of '937 in order to improve contrast.

Per claim 8-9 and 38, 47, diffusing elements were well known for reducing the screen door effect. Accordingly, it would have been obvious to one of ordinary skill at the time the invention was made to combine the well known diffuser with '937 to decrease the screen door effect. Also the reflector is a diffusing reflector.

Per claim 10-11 and 53-54, the control system if not inherent was notoriously well known. Since the lights source is only switched on during transmissive mode, it follows a control circuit would be required to drive the cell to achieve this result. Accordingly, it would have been obvious to one of ordinary skill at the time the invention was made to include control circuits to drive the cell to achieve the results stated in the abstract.

Per claim 12-13 and 33-37, the automatic response to ambient light was well known so as not to require the user to switch from one mode to the other if the user chooses to create such an automatic mode. That is to make something automatic was well known. Accordingly, it would have been obvious to one of ordinary skill at the time the invention was made to combine the well known automatic control scheme with '937 in order to decrease the necessary user input.

Claim 15, 18, 20, 22-26, 28-29, 33-38, 40-43, 48-52 and 57-69 are rejected under 35 U.S.C. 103(a) as being unpatentable over WO 97/01789 ("789").

Per claim 15, 789 teaches a liquid crystal display (LCD), comprising: a liquid crystal cell [130]; and a tunable mirror [136], optically aligned with the liquid crystal cell [it is directly behind the cell and reflects ambient light passing through the cell 130], having controllable reflective and transmissive modes, such that in the reflective mode the tunable mirror primarily reflects light received from the liquid crystal cell back through the cell, and in the transmissive mode the mirror primarily transmits light towards the liquid crystal cell [see pages 18-21].

789 the LCD of claim 4, but does not teach the tunable mirror comprising a quarter-wave ($X/4$) retarder for circularly polarizing linearly polarized light of the second linear direction to circularly polarized light of a second rotational direction, and for linearly polarizing circularly polarized light of the second rotational direction to linearly polarized light of the second linear direction, said $X/4$ retarder being substantially transmissive to randomly polarized light; and a liquid crystal reflector optically aligned with said $X/4$ retarder on a side opposite the liquid crystal cell, said liquid crystal reflector being controllably switchable between transmitting and reflecting states of operation for reflecting circularly polarized light of the second rotational direction in the reflecting state, and for transmitting light in the transmitting state, such that the tunable mirror operates in the reflective mode when the liquid crystal reflector is in the reflecting state, and in the transmissive mode when the liquid crystal reflector is in the transmitting state. This amounts to the well known cholesteric type reflector which is controllable. By adding the quarter wave plate the input light would be converted to circular polarized light and reflected by the CLC layer and then finally converted back to linearly polarized light by the quarter wave plate. This type of reflector is well known and would have been recognized as art equivalent. It would have been obvious to one of ordinary skill at the time the invention was made to replace the switchable light 136 of 789 with the art recognized equivalent CLC and quarter wave plate in order to decrease the number of necessary layers and thus decrease the overall thickness of the display. Also, during transmission mode it would also be possible to increase the efficiency of the cell light output. That is, it was obvious to replace the quarter-wave ($X/4$) retarder for

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circularly polarizing linearly polarized light of the second linear direction to circularly polarized light of a second rotational direction, and for linearly polarizing circularly polarized light of the second rotational direction to linearly polarized light of the second linear direction, said $X/4$ retarder being substantially transmissive to randomly polarized light; and a liquid crystal reflector optically aligned with said $X/4$ retarder on a side opposite the liquid crystal cell, said liquid crystal reflector being controllably switchable between transmitting and reflecting states of operation for reflecting circularly polarized light of the second rotational direction in the reflecting state, and for transmitting light in the transmitting state, such that the tunable mirror operates in the reflective mode when the liquid crystal reflector is in the reflecting state, and in the transmissive mode when the liquid crystal reflector is in the transmitting state with the reflector 136.

Per claim 18, 789 teaches the LCD of claim 17, but lacks the $0-X/2$ retarder is a nematic liquid crystal retarder. However, the layer 154 is a liquid crystal layer and it is well known to use twisted nematic liquid crystal for it large operation temperature range. Accordingly, it would have been obvious to one of ordinary skill at the time the invention was made.

Per claim 20, 789 teaches the LCD of claim 17, but lacks a quarter-wave ($X/4$) retarder between the backlight and tunable mirror. However, this was well known in order to improve the efficiency of the light outputted by the cell. Accordingly, it would have been obvious to one of ordinary skill at the time the invention was made.

Per claim 22, 789 teaches the LCD of claim 4, wherein the tunable mirror comprises: a tunable retarder, being controllably switchable between first and second states of operation, the optical phase delay of the two states differing by $X/2$. 789 lacks a cholesteric reflector optically aligned with the retarder on a side opposite the liquid crystal cell, for reflecting light received from the retarder in the first state, and for transmitting light through the retarder in the second state such that the tunable mirror operates in the reflective mode when the retarder is in the first state, and in the transmissive mode when the retarder is in the second state. However, this complete reflector is equivalent to the reflector 136. Accordingly, it would have been obvious to

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one of ordinary skill at the time the invention was made to replace the reflector 136 with the equivalent in order to increase efficiency.

Claim 27 is rejected under 35 U.S.C. 103(a) as being unpatentable over 5796454 ("454") in view of 5731886 ("886") and 10-206844 ("844").

Per claims 27, 454 teaches a tunable mirror, comprising: a liquid crystal reflector optically aligned with said X/4 retarder [although no explicit retarder is disclosed circular polarizer are formed by combining a linear polarizer with a quarter wave plate], said liquid crystal reflector being controllably switchable between reflecting and transmitting states of operation for reflecting circularly polarized light of the first rotational direction in the reflecting state, and for transmitting light in the transmitting state [see column 2, lines 17-24],

such that the tunable mirror reflects linearly polarized light of the first linear direction entering the X₄/4 retarder from a side opposite the liquid crystal reflector when the liquid crystal reflector is in the reflecting state, and transmits light entering the liquid crystal reflector from a side opposite the circularly polarizing element when the liquid crystal reflector is in the transmitting state [see columns 10-11].

454 lacks a quarter-wave (X/4) retarder for circularly polarizing linearly polarized light of a first linear direction to circularly polarized light of a first rotational direction, and for linearly polarizing circularly polarized light of the first rotational direction to linearly polarized light of the first linear direction, said X/4 retarder being substantially transmissive to randomly polarized light. However, 454 teaches a circular polarizer and 886 teaches a circular polarizer formed by a quarter wave plate and cholesteric and 844 in the cited machine translation teaches adding a quarter wave plate to a linear polarizer creates circular polarized light. These provide evidence that it was well known to use a quarter wave plate and linear polarizer to create circular polarized light. This technique is conventional and would reduce the cost of the polarizer. Accordingly, it would have been obvious to one of ordinary skill at the time the invention was made.

Allowable Subject Matter

Claims 30-32 and 39 are allowed.

Claims 14 and 23-26 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Per claim 14, the prior art of record does not teach or suggest an LCD of claim 4 wherein: said tunable mirror is further operable at least one intermediate mode in which it partially reflects light received from the liquid crystal cell back through the cell, and partially transmits light received from the backlight towards the liquid crystal cell; and said backlight is further operable at least one intermediate state of operation in which it partially illuminates the LCD.

Per claim 23 and its associated dependent claims, 789 teaches the LCD of claim 22 except for the tunable retarder is a negative quarter-wave to positive quarter wave ($\pm X/4$) retarder, controllably switchable between $-X/4$ and $+X/4$ states of operation, whereby in the $A/4$ state, said retarder converts linearly polarized light of a second linear direction to circularly polarized light of a second rotational direction, and converts circularly polarized light of the second rotational direction to linearly polarized light of the second linear direction and, in the $-X/4$ state, said retarder converts circularly polarized light of a first rotational direction to linearly polarized light of the second linear direction; and whereby said cholesteric reflector reflects circularly polarized light of the second rotational direction and transmits a component of randomly polarized light having a circular polarization of the first rotational direction, such that the tunable mirror operates in the reflective mode when the $\pm X/4$ retarder is in the $+X/4$ state, and in the transmissive mode when the $\pm X/4$ retarder is in the $-X/4$ state. The prior art of record does not teach or suggest this.

The following is a statement of reasons for the indication of allowable subject matter: in re claims 30 and its associated dependent claims, the relied upon art does not teach a negative quarter-wave to positive quarter-wave ($\pm X/4$) retarder.

Per claim 39, the prior art does not teach or suggest a method of operating a liquid crystal display "partially reflecting light entering a first side of a liquid crystal cell and exiting a second side of the liquid crystal cell back through the liquid crystal cell, and generating and partially transmitting a backlight emission from the second side of the liquid crystal cell through the

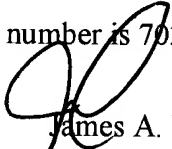
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liquid crystal cell when light entering from the first side of the liquid crystal cell falls below said viewability threshold".

Any inquiry concerning this communication or earlier communications from the examiner should be directed to James A. Dudek whose telephone number is 308-4782. The examiner can normally be reached on 9:00-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert H. Kim can be reached on 703-305-3492. The fax phone numbers for the organization where this application or proceeding is assigned are 703-308-7721 for regular communications and 703-308-7721 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.



James A. Dudek
Primary Examiner
Art Unit 2871

May 29, 2003